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In the United States Patent and Trademark Office

Applicant David F. Arlasky
Serial No. 10/623,960
Filed: 17 July 2003
For IMPROVED MUFFLER

] Before the Examiner
Edgardo San Martin
Art Unit 2837
]

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

A M E N D M E N T

Sir:

This Amendment is responsive to the Office action mailed 03/19/2007.

1. EXAMINER'S AMENDMENT

The examiner has proposed amendments to Claims 65 and 66. While applicant appreciates the suggested amendments by the examiner, they are not necessary as Claims 65 and 66 have been cancelled.

2. CONTINUED EXAMINATION UNDER 37 CFR 1.114

Applicant notes the acceptance of the request for continued examination.

3. SPECIFICATION

Inasmuch as the Examiner has found the amendment filed May 23, 2006 containing a new paragraph in the specification to be new matter, and has required applicant to cancel the objected to material, applicant hereby complies with that requirement and requests, with traverse, that this objected to material be cancelled. Applicant submits that this objected to material was presented as providing information from the drawings as filed, which showed the relationship of the structural elements comprising applicant's invention, and not to demonstrate any particular measurements or

dimensions.

4. CLAIM REJECTIONS - 35 USC Sec. 112

In view of the cancellation of the objected to material referred to in the foregoing Par. 3, applicant submits that the 35 USC Sec. 112 objections have been met, and this rejection should be withdrawn.

5. CLAIM REJECTIONS - 35 USC Sec. 103

New base Claims 67 -69 are now in this application. Dependent Claims 43, 47, 49, and 51 are now dependent on new Claim 67. Dependent Claims 52 and 56 are now dependent on New Claim 68. All of the other claims, namely independent Claims 62-63 and 64, and their dependencies Claims 45-46, 55, 59, 61, and 64, should be and have been cancelled.

New base Claims 67 and 68 now defines the chamber as

--having a substantially constant interior diameter--

and adds the following limitation in substitution for the objected to “new matter material”:

--the length of said chamber being substantially many times greater than its diameter, said chamber having a flow cross section substantially 75% to 90% greater than the flow cross section of said inlet tube, so that gases entering said chamber are swirled into a tightly spun vortex thus creating a vacuum drawing more gasses through said chamber at an accelerating rate to exit said outlet.--

New Claim 69 now includes the following limitations:

--providing an inlet attached to an engine and a chamber having a substantially constant interior diameter attached to said inlet, the length of said chamber being substantially many times greater than its diameter, said chamber having a flow cross section substantially 75% to 90% greater

than the flow cross section of said inlet, and an outlet from said chamber remote from said inlet,--
and

--swirling exhaust gases entering said chamber responsive to rotating said propeller into a tightly spun vortex thus creating a vacuum drawing gasses through said chamber at an accelerating rate to exit its outlet without materially inducing back pressure on said engine.--

The language in the new base claims is taken directly from the specification, except for the statements relative to the compared length of the chamber to the diameter of the inlet, which is not an issue of dimension, but is a matter of relative structure clearly apparent from the drawings.

The claims formerly in this application were rejected under 35 USC 103(a) as unpatentable over Nakamura (JP 04081507) in view of Weiss (US 4,263,981) and further in view of Ross (US 2,078,827). Reconsideration of this rejection is solicited in view of the present amendment.

Nakamura, a Japanese patent, is an exhaust muffler which separates exhaust gas from heavy cooling water by centrifugal forces, utilizing a "leading inlet 25" communicating with an expansion chamber. The chamber has a portion which is of constant diameter and a portion of reduced diameter leading to its outlet, and is not constant along its length. The inclined walls of the chamber remote from the inlet hold and drain the heavy cooling water, but these inclined walls in the direction of flow will inhibit the gas flow, despite the swirling action separating the heavy water from the gas in the areas of the water flow along the periphery of the chamber. There is no propeller device in Nakamura and it is not fairly suggested.

Weiss , which is intended for noise control, has inlet and outlet pipes communicating with an enlarged expansion chamber, which has a cross section many, many times (probably six or seven times, at least 600%) greater than the cross section of the inlet. Gases entering the expansion

chamber substantially expand and cool in this enlarged chamber before exiting. There is no propeller or other means to cause the gas to swirl and no inducement device for moving the gases rapidly through the chamber to exit an outlet.

Ross has multiple propellers, but they are all “preferably placed athwart the muffler” (col. 2, lines 2-3) and expressly not at the entry to the expansion chamber.. Ross’ chamber is not of constant diameter and is tapered outwardly from its entry to its exit. Ross’ multiple propellers actually block the flow of gasses. The structure includes multiple deflectors 26-28 which also block the flow of gas.

The position of applicant’s propeller is critical and not merely a matter of design choice, as suggested by the Examiner. Gas exiting the engine is very hot, tightly compressed and under great pressure. As these gases enter the expansion chambers of the prior art and conventionally, they cool and expand and the pressure is substantially lessened. The presence of the propeller at the entry to the chamber in applicant’s device is necessary to take advantage of the velocity of the gases exiting the engine. This velocity, pressure and expansion of the gases actuates the propeller and forces the gases to move in a swirling, tight vortex toward the chamber exit. Placement of the propeller further down the chamber, as in Ross, would inhibit the necessary benefit of gas pressure in moving the gas to the chamber exit. The presence of the high velocity movement down the longitudinal center of the chamber caused by this phenomenon results in the creation of a vacuum along the periphery of the chamber walls and that vacuum further enhances the movement of the gas to the exit. No other reference alone or in combination with other references, cited or known, teaches this structure.

Applicant has submitted the Declaration of David F. Arlasky on October 25, 2005, together with exhibits. He specially built an exhaust system with the propeller at the chamber exit and it was

tested. Applicant employed independent test companies to test this specially built device and also tested stock vehicles having conventional exhaust systems in comparison to devices like those embodying the present invention. In every case torque increased and fuel economy was noted with the use of applicant's embodiments against the specially built device and the conventional units tested. Further, applicant presented a Declaration of Alarsky, attesting to further tests by known experienced testing companies and also attesting to testimonials received by applicant's assignee and to said assignee's commercial success of applicant's device. The examiner has not commented on these submissions.

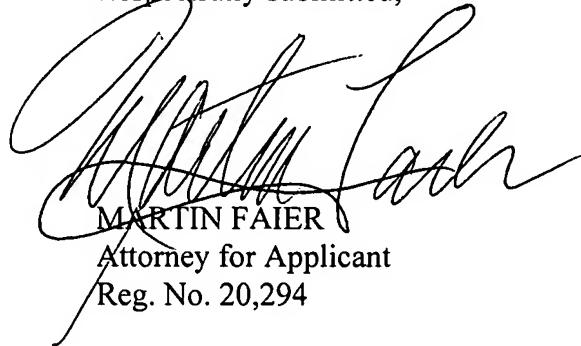
The examiner seems to be reconstructing applicant's devices by use of bits and pieces from various prior art references and the benefit of hindsight, which should not be used to defeat patentability, see In re Rouffet, 149 F.3rd 1350, 47 USPQ2D 1453 (Fed. Cir. 1008). The U.S. Supreme Court has held that secondary considerations such as commercial success, long felt but unsolved needs, and failure of others, might be utilized need..as indicia of ...non-obviousness. Graham v. John Deere Co., 383 US 1, and it is believed that the Declarations of record, including the tests and superiority of applicant's device, which have not been commented upon, go to these consideration. Such evidence arising out of "secondary considerations" must always...be considered en route to a determination of obviousness. In re Vamco Machine and Tool, Inc., CA Fed 1985, 224 U.S.P.Q. 617.

According to the Court of Appeals for the Federal Circuit, superiority of the product of applicant's process to products of...prior art..was highly relevant in determining whether...invention would have been obvious for those skilled in the art... ,Application of Tiffin, 443F2d 394 (1971) , amended on other grounds, 448 F2d 791, but there is no information in the record that the Examiner

reviewed such evidence showing superior torque and fuel economy from applicant' device, as shown in the test records.

Applicant respectfully requests reconsideration of the rejections, particularly based upon the claims as now presented, which are believed to patentably distinguish over the art.

Respectfully submitted,

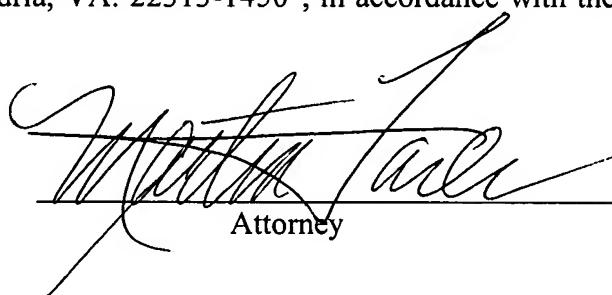


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Certificate of Mailing

I certify that this Amendment and the accompanying Listing of Claims was mailed via first class U.S. Mails, postage prepaid, in an envelop addressed to "Hon. Commissioner for Patents, Mail Stop Amendment, P. O. Box 1450, Alexandria, VA. 22313-1450", in accordance with the Rules, on June 19, 2007.



Attorney